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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,674	08/28/2003	Richard J. Jibb	D-21371	5667

7590 08/15/2005

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EXAMINER

WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/649,674

Applicant(s)

JIBB, RICHARD J.

Examiner

Teresa J. Walberg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/28/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauls (3,559,722) in view of Schwartz et al (4,715,433).

Schauls discloses (see Fig. 5) a heat exchanger distributor for a multicomponent heat exchange fluid (col. 1, lines 6-9) including a main volume having a hardway fin section (33) and a main fin section (34), means (18 and 21) for providing multicomponent heat exchange fluid to the main volume, means (22) for withdrawing multicomponent heat exchange fluid from the main volume, the main fin section comprises from 66 to 99 percent of the main volume (See Fig. 5).

Schauls does not disclose a plurality of spaced dividers longitudinally oriented within the main volume, each of said dividers traversing substantially the entire hardway fin section.

Schwartz et al disclose a heat exchanger including a plurality of spaced dividers (111) longitudinally oriented within a main volume (see Fig. 5), each of said dividers (111) traversing substantially an entire hardway fin section (200, 210).

It would have been obvious in view of Schwarz et al to provide dividers in the heat exchanger of Schauls, the motivation being the make the apparatus stronger and more resistant to deformation of the flow paths.

With regard to claim 4, while Schauls and Schwartz et al do not disclose the dividers being spaced at least 3 inches apart, it would have been obvious to one of ordinary skill in the art to give them any suitable spacing based on the dimensions of the rest of the device.

3. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauls (3,559,722) in view of Schwartz et al (4,715,433) as applied to claims 1-4 and 10 above and further in view of Aitken (5,722,258).

Schauls in view of Schwartz et al disclose a heat exchanger distributor as claimed with the exception of the main fin section comprising serrated or perforated fins.

Aitken discloses a heat exchanger including fins that are serrated and perforated. See Fig. 3.

It would have been obvious in view of Aitken to provide fins that are serrated and perforated in the heat exchanger of Schauls in view of Schwartz et al, the motivation being to increase the heat transfer by making the flow more turbulent.

4. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schauls (3,559,722) in view of Schwartz et al (4,715,433) as applied to claims 1-4 and 10 above and further in view of Sunder et al (5,122,174).

Schauls in view of Schwartz et al disclose a heat exchanger distributor as claimed with the exception of the hardway fin section and the main fin section each including two or more subsections of different fins

Sunder et al discloses a heat exchanger including a hardway fin section and a main fin section each including two or more subsections of different fins. See Fig. 1.

It would have been obvious in view of Sunder et al to provide a hardway fin section and a main fin section each including two or more subsections of different fins in the heat exchanger of Schauls in view of Schwartz et al, the motivation being the increase the heat transfer.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schauls (3,559,722) in view of Schwartz et al (4,715,433) as applied to claims 1-4 and 10 above and further in view of Petit et al (Re 33,026).

Schauls in view of Schwartz et al disclose a heat exchanger distributor as claimed with the exception of adjacent slotted bars and hardway fins for the flow therethrough of liquid and vapor respectively.

Petit et al discloses a heat exchanger (see Figs. 3 and 6) including adjacent slotted bars (28, 29) and hardway fins (20) for the flow therethrough of liquid and vapor respectively.

It would have been obvious in view of Petit et al to provide adjacent slotted bars and hardway fins for the flow therethrough of liquid and vapor respectively. in the heat exchanger of Schauls in view of Schwartz et al, the motivation being to make the flow of the liquid and vapor more even.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the main fin section containing fins that are serrated or perforated must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Stahlheber, Butt (3,310,105), Hoffman et al, Toyama, Nakako et al, Butt (4,349,595), Becker, Sweeney et al (5,709,264), Sweeney et al (5,755, 279), Corduan et al are cited to show heat exchanger structure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg
Primary Examiner
Art Unit 3753

tjw